REMARKS/ARGUMENTS

This amendment and request for reconsideration is intended to be fully responsive to the Final Action mailed August 23, 2005. Applicant is grateful for the indication that claims 2 and 4 contain subject matter that is allowable. Claim 2 has been rewritten into independent form.

Claims 1 and 3 were rejected under 35 U.S.C. 103(a) as being unpatentable over JP 05-296009 (Yamanishi et al) in view of Wilkinson et al (USPN 4,333,515). This rejection is respectfully traversed in view of the following comments.

Yamanishi et al. '009, cited and described in the present application, proposes an exhaust heat recovery system in which cooling water for a steam turbine condenser is used. More specifically, cooling water passes through the evaporator 5c to make warm water for heating purposes. Moreover, Yamanishi discloses a heat source water circulation line 8 provided between a condenser 4 and an evaporator 5c of a refrigerator 5. It is therefore to be understood that the refrigerator 5 of Yamanishi is not "connected with a cooling medium side channel of the condenser" 4 as recited in claim 1.

Moreover, Figure 1 of the present invention clearly shows that the exhaust heat of the condenser 6 generated to condense steam led from the turbine 5 into liquid water is recovery by the heat pump unit 2 directly connected with the condenser 6. Indeed, claim 1 recites "the compression type heat pump directly recovering the heat from the steam turbine facility." In Yamanishi, the refrigerator 5 does not "directly" recover the heat from the steam turbine facility as recited in claim 1 of the instant application.

The heat recovery system of Yamanishi has disadvantages overcome by the instant invention. As described in detail in the present application, in the heat recovery system of Yamanishi the absorption chiller is employed to generate warm water. However, the absorption chiller requires another working medium, that is, an absorbent solution, in addition to the refrigerant. Further required, in addition to the evaporator, are an absorber, a regenerator, and if more improved thermal efficiency is desired, a high-temperature regenerator. The multitude of these elements leads to undesired upsizing of the system. Moreover, the absorber of the absorption chiller which must permit a heat exchange, material exchange and phase change to simultaneously take place inside between the absorbent solution and the refrigerant/cooling water; thus, the complexity in the construction of the absorber and the resulting limitation placed on miniaturization thereof would pose a problem. Furthermore, the exhaust heat recovery system of Yamanishi is provided with a cooling water channel, through which water or the like flows, interposed between the condenser and the evaporator of the absorption chiller. Thus, the heat exchange efficiency in the condenser is kept low, and the size of the condenser cannot be made compact any more, which are also perceived as disadvantages thereof.

The Examiner alleges that Wilkinson teaches the use of the compression heat pump in a waste heat recovery system of a steam turbine plant.

Contrary to the Examiner's allegations, the system of Wilkinson is related to the use of an "absorption heat pump system having one or more stages which efficiently sensible waste heat from industrial or other sources to boost a portion of that heat to a useful level" (see column 1,

lines11-15). Although Wilkinson also teaches that a heat pump can be used to increase the temperature of waste heat (available as low pressure steam or heated fluid) to a useable level, nowhere in the specification Wilkinson mentions a waste heat of a steam turbine plant.

Moreover, contrary to the Examiner's allegations, the system of Wilkinson, although mentions a vapor compression heat pump, teaches that "it has been suggested to utilize some of the waste heat available in a heat engine to drive the compressor in a vapor compression heat pump cycle" (see column 1, lines 57-59). Again, the compressor of the compression type heat pump recited in claim 1 is not driven by the waste heat from the steam turbine plant.

Thus, Wilkinson fails to disclose the use of the compression heat pump in a waste heat recovery system of a steam turbine plant, wherein a heat channel of a compression type heat pump is connected with a cooling medium side channel of the condenser in order to directly recover the heat from the steam turbine facility.

In fact, Wilkinson concluded that an absorption heat pump is by far superior to a compression type heat pump. Wilkinson clearly discloses that "In order to eliminate the need for a compressor and turbine, an absorption cycle heat pump process may be utilized." Thus, Wilkinson teaches directly away from the present invention as recited in claim 1.

Therefore, as both Yamanishi and Wilkinson teach the absorption type heat pump, even if combination and modification of Yamanishi and Wilkinson, suggested by the Examiner, could be made, the resulting device still would lack the compression type heat pump having a heat channel connected with the cooling medium side channel of the condenser of the steam turbine facility.

Therefore, it is respectfully submitted that claims 1 and 3 define the invention over the prior art of record and are in condition for allowance, and notice to that effect is earnestly solicited. Should the Examiner believe further discussion regarding the above claim language would expedite prosecution they are invited to contact the undersigned at the number listed below.

Respectfully submitted:
Berenato, White & Stavish

By: 
Matthew Stavish
Reg. N° 36,286

6550 Rock Spring Drive
Suite 240
Bethesda, Maryland 20817
Tel. (301) 896-0600
Fax (301) 896-0607